

REMARKS/ARGUMENTS

Claims 1-21 and 36-38 were examined again. In this Office Action, Claims 1, 2, 5-7, 9-10 and 15-16 are rejected under 35 USC 103(a) as being unpatentable over Kawahara et al (US Patent No. 6,327,057, hereinafter “Kawahara”) in view of Rasmussen (US Pat Publication No.: 20030138167, hereinafter “Rasmussen”) and Chen (US Pat Publication No.: 20040252355, hereinafter “Chen”), Claims 7 and 37-38 are rejected under 35 USC 103(a) as being unpatentable over Chen in view of admitted prior art (hereinafter “APA”) and Rasmussen, Claim 13 is rejected under 35 USC 103(a) as being unpatentable over Kawahara, Rasmussen and Chen and further in view of Hasegawa et al (US Patent No. 6,678,076 hereinafter “Hasegawa”), Claims 3 and 14 are rejected under 35 USC 103(a) as being unpatentable over Kawahara, Rasmussen, Chen and Hasegawa in further view of Yokochi et al (US Patent Pub. No.: 20040012830, hereinafter “Yokochi”), Claims 20-21 are rejected under 35 USC 103(a) as being unpatentable over Kawahara in view of Apperson et al et al (US Patent No.: 6,079,624, hereinafter “Apperson”), Claims 4, 11-12, and 17-18 are rejected under 35 USC 103(a) as being unpatentable over Kawahara and Rasmussen in view of well known prior art, Claim 36 is rejected under 35 USC 103(a) as being unpatentable over Kawahara in view of Hasegawa.

The Examiner is appreciated for thoughtful comments. In the foregoing amendments to the Specification and Drawings, the Applicant has reversed some of the amendments made in a previous Response that may be interpreted to have introduced new matters. It is believed that the current amendments shall have overcome the objection to the Specification.

On pages 2-5 of the Office Action, the Examiner points out that the originally submitted drawings do not show every feature of the invention being claimed. The Applicant hereby submits a new sheet of drawing including FIG. 8A and FIG. 8B to show that a double-sided document is being scanned by two scanning modules and that scanned image signals are read out in sequence and used to recover a complete image of the double-sided object. As the features are originally described in the Specification, the new sheet of drawing is provided to show the features. No new matter is introduced.

Also in the foregoing amendments, Claims 1, 7-9, 10 and 36-37 have been amended to further distinguish from the cited references. No new matters have been introduced. As a result of the amendments, Claims 1-21 and 36-38 are still pending. Further consideration of the pending claims is respectfully requested in view of the amendments and the following remarks.

As amended, Claim 1 now recites:

providing a first contact image sensor module for executing a first document reading session through a trigger of a start pulse, and then the first contact image sensor module outputting a corresponding first scanned image signal;

providing a second contact image sensor module operatively connected to the first contact image sensor module for executing a second document reading session and then the second contact image sensor module outputting a corresponding second scanned image signal,

wherein the first and second contact image sensor modules are positioned facing towards each other to scan both sides of the object inserted between the first and second contact image sensor modules, the first and the second scanned image signals are selected to be outputted sequentially via an interface to a computing device that executes a software module to integrate the first and the second scanned image signals to recover an image of the object.

(Emphasis added)

As originally described and claims in the instant application, an optical scanner includes at least two image sensing modules, each is provided to cover one part of an object (e.g., one side of an object). Upon receiving a start pulse, a first image sensing module starts a first scanning operation. When the first scanning operation is done, a second image sensing module is caused to start a second scanning operation. When two of the image sensing modules are positioned facing towards each other, a double-sided document can be scanned.

As the scanned image signals are read out sequentially, the output signals will be an interlaced signal with one from the first image sensing module and another from the second image sensing module. It is understood to those skilled in the art that the scanned image signal from the first and second image sensing modules must be

integrated or processed to recover a complete image of the object, in which case two respective images of the double-sided document. The operation of processing the image signals is specifically recited to be performed in a software module being executed in a computing device that receives the output signals via an interface.

In contrast, Kawahara teaches a method of reducing current consumption in a contact type linear image sensor of a multi-chip form, where multiple linear sensor chips are connected in series. In operation, when one of the linear sensor chips is in scanning mode, the others linear sensor chips are put into “sleeping mode” so as to reduce the power consumption. However, Kawahara is silent about “the first and the second scanned image signals are selected to be outputted sequentially via an interface to a computing device that executes a software module to integrate the first and the second scanned image signals to recover an image of the object”. The Examiner agrees and cites Rasmussen. However, the amendments to claim 1 of the instant application have made Rasmussen irrelevant because Rasmussen teaches about stitching two images using the overlapping information.

Chen is also cited to show the teaching of processing scanned image signals in a computer. More specifically, Chen shows a duplex scanner with which double-sided document may be scanned. However, Chen fails to show that “the first and the second scanned image signals are selected to be outputted sequentially” because Chen only shows that the back-side signal SD2 is transferred from the top module 10 to the bottom module 20 for output. Accordingly, it is believed to the Applicant that amended claim 1 shall have overcome Kawahara, Rasmussen and Chen, viewed alone or in combination. Reconsideration of claims 1-7 is kindly requested.

Claim 8 is amended to include similar limits recited in claim 1. Further, claim 8 includes a timing generator that not only provides a clocking signal to each of the contact image sensor modules but also is configured to provide a start pulse to a first contact image sensor module to trigger a first document reading session thereof and output a first scanned image signal. In contrast, as described in lines 18-34 of Col. 2, Kawahara teaches the use of a clock buffer being on or off to synch with a “sensor

module" being in operation or not. Kawahara is silent about using a timing generator to control the operations of multiple sensor chips. Accordingly, it is respectfully submitted that amended claim 8 shall be allowable over Kawahara, Rasmussen and Chen, viewed alone or in combination. Reconsideration of claims 8 -21 is kindly requested.

Likewise, both Claims 36 and 37 include similar limitations recited in claim 1. The Applicant wishes to rely on the above reasons and amendments to support amended claims 36 and 37, and respectfully submits Kawahara, Rasmussen and Chen, viewed alone or in combination fails to teach that "the first contact image sensor module is placed to face one side of an object and the second contact image sensor module is placed to face the other side of the object so that so that the optical scanner is capable of scanning a double sided document" and "two scanned image signals from the first contact image sensor module and the second contact image sensor module are read out in sequence". Accordingly, claims 36 and 37 shall be allowable. Reconsideration of claims 36-38 is respectfully requested.

In view of the above amendments and remarks, the Applicants believe that Claims 1-21 and 36-38 shall be in condition for allowance over the cited references. Early and favorable action is being respectfully solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplementary Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at (408)777-8873.

I hereby certify that this correspondence is being deposited with the EFS of the United States Patent and Trademark Office and addressed to "Commissioner of Patents and Trademarks, Alexandria, VA 22313-1450", on Aug. 8, 2008.

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